

## ABSTRACT

There are provided a NO<sub>x</sub> storage reduction catalyst which is provided in an exhaust passage for an internal combustion engine, and concentration detection means whose  
5 detection state can be changed between a first detection state in which a total concentration of sulfur oxide and hydrogen sulfide in exhaust gas that has passed through the NO<sub>x</sub> catalyst is detected, and a second detection state in which a concentration of the sulfur oxide in the exhaust gas is detected. An operating state of the internal combustion engine is controlled such that the sulfur oxide is released from the NO<sub>x</sub> catalyst (sulfur  
10 poisoning recovery process). The detection state of the concentration detection means is alternately changed between the first detection state and the second detection state after the concentration detection means which is caused to remain in the second detection state detects release of the sulfur oxide from the NO<sub>x</sub> catalyst during the sulfur poisoning recovery process, whereby the concentration of the sulfur oxide and a concentration of  
15 the hydrogen sulfide are obtained.

Selected drawing: FIG. 7